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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of

SIMON BLANCHARD

METHOD AND DEVICE FOR PREFETCHING A REFERENCED RESOURCE

Serial No. 10/082,872

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Group Art Unit: 2187

Examiner: KIMBERLY N. MCLEAN

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APPEAL BRIEF. 37 C.F.R. 1.192

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Introduction

This Application is before the Honorable Board of Patent Appeals and Interferences, from a final decision of the Examiner as indicated in the Advisory Action dated December 24, 2003.

Real party in interest

The real party of interest is the Assignee who is U. S. Philips Corporation, a corporation existing under the laws of the State of Delaware (hereinafter Appellant).

Related appeals and interferences

There are no related appeals or interferences to the present application that are known to appellant, the appellant's legal representative, or assignee which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

Status of the Claims

Claims 1-9 as originally filed are drawn to a method and apparatus for adding insertions within a selected program have been finally rejected. Claims 1-9 are set forth in the attached Appendix I, as the appealed claims.

Status of the Amendments After Final

A response was filed subsequent to the final rejection to overcome the Examiner's rejection of claims 1-9 under 35 U.S.C. §102(b). The Examiner in an advisory action (paper no. 11) indicated that the rejection based on §102(b) stands.

Summary Description of the Invention

The present invention relates to a method and device for prioritizing and fetching a referenced resource from a group of references based upon a determination of the weight of the referenced resource. For each reference 107 to a resource in the group, a respective weight is determined and assigned for that reference 107 based on the number of times the referenced resource has previously been fetched and on the number of times one or more further resources have been fetched previously from the server that serves the resource referenced by the reference (see page 4, lines 26-32). The invention then prefetches resources 107 that are available from a server 102,103,104 based on the determined weight.

The problems to be solved by the invention, as well the advantages of the invention are described in detail in the description (see pages 1-6). Briefly stated, the invention provides fetching of resources from servers based on a cumulative weighting of multiple resources served any given server. The weighting attributes of the invention envision that a resource can have numerous references that may have been previously fetched allowing for simple access to popular resources by accounting for the cumulative total of fetches for multiple resources on a server. The weight of the referenced resource being based on the number of times the referenced resource has previously been fetched as well as on the number of times one or more other resources available from that same server that serves the referenced resource have previously been fetched (see page 5, lines 12-14) yields a probability based on an entire area that is popular rather than simply a single resource, or page.

Issues on Appeal

The only issue presented is whether claims 1-9 are patentable under 35 U.S.C. §102(b) over United Stated patent No. 5,878,223 issued to Becket et al.

Grouping of the Claims

The claims of the invention do not stand and fall together. The appealed claims should be considered as forming two (2) groups. The first group including independent claims 1 and 4, and the second group including dependent claims 2 and 5.

Arguments

A. The rejection under 35 U.S.C. §102

Claims 1-9 stand rejected under 35 U.S.C. § 102(b) as being unpatentable over U.S. Patent 5,878,223 issued to Becker et al. (hereinafter referred to as Becket et al.). The Examiner's position is that Becket et al. anticipates each and every element recited by the appealed claims.

B. The reference

Becket et al. (U. S. Patent No. 5,878,223) disclose a system and method for predictive caching of information pages. The teaching of Becker et al. involve using a probability table to predict the page that is most likely to be the next selected page by a computational device on a network (see Abstract). The implementation of a probability table as taught by Becker et al. is based on the probability of the next page that will be selected based on to the current page that is currently selected (see column 9, lines 11-17). Becker et al. teach calculating the probability of the next page to be selected based entirely upon the current page that is selected for every possible current page. Additionally, Becker et al. maintains the probability for every possible next-to-be selected page (see column 9, lines 18-25).

In an alternative embodiment, Becker et al. teaches that a multi-level prediction table can be used in combination with the currently selected page to predict the next page to be selected (see column 9, lines 57-67). Every embodiment taught by Becker et al predicts the next most likely page to be selected based on the current page selected.

Additionally, every embodiment taught by Becker et al queries the ability of the requesting computational device to implement the selected page and requests permission to send

the predicted page (see Fig. 4A and Fig. 4B). The appellant respectfully points out that Becker et al. teaches probability values that are used to generate predictions to a requesting device, which prediction may or may not be accepted by the requesting device.

C. The differences between the invention and the references

Becket et al. (U. S. Patent No. 5,878,223) does not teach the prefetching of resources from a server based on a weight that is established based on the number of previous fetches that have occurred for multiple resources available from the same server. The prediction methodology of Becket et al. employs weighting determined using probabilities for a single resource (page). Additionally, the prediction taught by Becket et al. is directly related to the probabilities of the next page to be selected based on the page that is currently selected.

Furthermore, Becket et al. does not teach the automatic prefetching of a referenced page. Becket et al. requires that the requesting computer determine whether it will accept the predicted page (see column 5, lines 56-58).

"To anticipate a claim, a prior art reference must disclose every limitation of the claimed invention, either explicitly or inherently." In re Schreiber, 128 F.3d 1473, 1477, 44 USPQ2d 1429, 1431 (Fed. Cir. 1997). The Appellant respectfully points out that Becket et al. are silent regarding the generation of a weighting criteria based upon both the number of times a resource has been previously fetched and the number of times other resources available on the same server have previously been fetched. The Appellant also would like to respectfully point out that there is no disclosure within Becket et al. for prefetching the determined next to be selected resource without first gaining permission to do so.

Becket et al. teach determining the probability of the next to be selected resource (page) using factors related to the current page selected. Becker et al. teach a prediction table that contains the probability that the page will be selected relative to the current page that is selected (see column 9, lines 29-45). The invention, as defined by the appealed claims, recites a method and apparatus for prefetching resources based on the number of times that resource has previously been fetched **and** the number of times other resources available on the same server have been previously been fetched (see page 5, line 12-14). The prefetching of the invention as defined by the appealed claims employs a weighting criteria based upon multiple resources that

available from a server. In contradistinction to the appealed claims of the invention, Becket et al. do not disclose, or suggest, that weighting criteria can be based upon the frequency of which multiple resources available from the same server have been previously fetched. Becket et al. compute a weighting criteria for the probability that a next page will be selected based upon the current page that is selected and as such teaches a fundamentally different approach to generating probabilities for predicting the next page to be selected.

Becker et al. discloses a system and method for catching information pages wherein the resource attempts to predict the most likely page to be selected and queries the requestor permission to send the predicted page from the resource to the device (see FIG. 4A-1 and 4A-2). The appealed claims recite the prefetching of a referenced resource having a maximum weight where the weight is determined by the number of times the referenced resource has been previously fetched and the number of times other resources have been previously fetched from the server the serves the referenced resource. The appellant respectfully points out that the appealed claims to the invention recite a method and device that operates to prefetch elements from resources in an unequivocal manner. There is no scenario within the invention as recited by the appealed claims wherein an accessed resource queries the requesting device for permission to send a page that has been predicted as taught by that Becker et al. (see FIG. 4A-1, reference numerals 235 and 240). Furthermore, Becker et al. specifically teaches that the requestor has an option of declining to accept the predicted page (see column 5, lines 55-57), which is a fundamental difference from the appealed claims. The appealed claims relate to a device that performs its' own prefetching and performs the prefetching automatically.

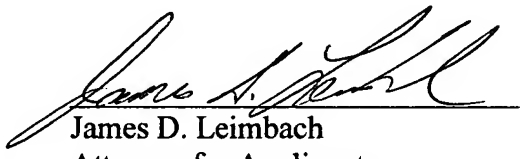
Regarding the appealed claims of group two (2), the appellant would like to point out that the foregoing argument relates to all the appealed claims. The appellant respectfully submits that the claims of the second group (appealed claims 2 and 5) recite additional elements that are allowable over the cited reference, Becker et al. Each of appealed claims 2 and 5 recite the additional element wherein further resources within the group of references are prefetched in accordance with their respective weight (see page 5, line 20-26). Becker et al. teaches prefetching based upon the current page selected and does not teach the prefetching of resources in groups as recited by appealed claims 2 and 5. Appealed claims 2 and 5 recite the additional elements of prefetching in groups in a manner that is consistent with the overall premise of the invention, this premise being to determine the probability weight of the next resource to be

selected based upon based the number of times similarly referenced resources have been previously fetched. Appealed claims 2 and 5 provide the next logical element to prefetching resources, that element being that successive resources to be selected will be served by the same server. Becker et al. does not teach that it is desirable to predict pages will be selected in groups from the same server, but instead predicts the next page from the currently page selected and accordingly is a fundamentally different approach to generating probabilities.

D. Conclusion

In summary, the Examiner's rejections of the claims are believed to be in error for the reasons explained above. The rejections of each of claims 1-9 should be reversed.

Respectfully submitted,



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APPENDIX 1 Claims on Appeal

1. A method of prefetching a referenced resource, comprising the steps of:

determining a group of references (107) to resources from a given first resource (106),

for each reference (107) to a resource in the group, computing a respective weight and assigning it to the reference (107),

determining a reference from the group having a maximal respective weight, and

prefetching the resource referenced by that reference,

wherein the respective weight for a reference (107) is computed based on the number of times (202) the resource referenced by that reference (107) has been fetched previously, and on the number of times (203) one or more further resources have been fetched previously from a server (102, 103, 104) that serves the resource referenced by the reference (107).

2. A method as claimed in claim 1, further comprising the step of prefetching further resources referenced by references (107) from the group in the order of their respective weights.

3. A method as claimed in claim 1, wherein the computation of the respective weight is further based on one or more keywords from a description of the resource referenced by the reference (107).

4. A device (100) for prefetching a referenced resource, comprising

- link determination means (110) for determining a group of references (107) to resources from a given first resource (106),
- link weighting means (111) for computing, for each reference (107) to a resource in the group, a respective weight and assigning it to the reference (107),
- choosing means (112) for choosing from the group a first reference having a maximal respective weight, and
- prefetching means (113) for prefetching a resource referenced by that first reference, wherein the link weighting means (111) are arranged to compute the respective weight for a reference

(107) based on the number of times (202) the resource referenced by that reference (107) has been fetched previously, and on the number of times (203) one or more further resources have been fetched previously from a server (102,103,104) that serves the resource referenced by the reference (107).

5. A device (100) as claimed in claim 4, wherein the prefetching means (113) are further arranged for prefetching further resources referenced by references (107) from the group in the order of their respective weights.

6. A device (100) as claimed in claim 4, wherein the link weighting means (111) are further arranged to compute the respective weight further based on one or more keywords from a description of the resource referenced by the reference (107).

7. A computer program product enabling a programmable device when executing said computer program product to function as the device (100) of claim 4.

8. The computer program product of claim 7, comprising a world-wide web browser.

9. The computer program product of claim 7, comprising a caching proxy server.